

RAW SEQUENCE LISTING

**The Biotechnology Systems Branch of the Scientific and Technical
Information Center (STIC) no errors detected.**

Application Serial Number: 09/461,537B
Source: 1FW16
Date Processed by STIC: 11/5/04

ENTERED



FW/16

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/461,537B

DATE: 11/05/2004

TIME: 10:31:39

Input Set : A:\4216260 SQ List.txt

Output Set: N:\CRF4\11052004\I461537B.raw

3 <110> APPLICANT: Novozymes Biotech
 4 Royer, John C
 5 Moyer, Donna L
 6 Yoder, Wendy T
 7 Shuster, Jeffrey R
 9 <120> TITLE OF INVENTION: Non-Toxic, Non-Pathogenic, Non-Pathogenic Fusarium
 Expression
 10 System
 12 <130> FILE REFERENCE: 4216.260-US
 14 <140> CURRENT APPLICATION NUMBER: 09/461,537B
 15 <141> CURRENT FILING DATE: 1999-12-15
 17 <150> PRIOR APPLICATION NUMBER: 08/816,915
 18 <151> PRIOR FILING DATE: 1997-03-13
 20 <150> PRIOR APPLICATION NUMBER: 08/726,105
 21 <151> PRIOR FILING DATE: 1996-10-04
 23 <150> PRIOR APPLICATION NUMBER: 08/404,678
 24 <151> PRIOR FILING DATE: 1995-03-15
 26 <150> PRIOR APPLICATION NUMBER: 08/269,449
 27 <151> PRIOR FILING DATE: 1994-06-30
 29 <160> NUMBER OF SEQ ID NOS: 16
 31 <170> SOFTWARE: PatentIn version 3.2
 33 <210> SEQ ID NO: 1
 34 <211> LENGTH: 30
 35 <212> TYPE: DNA
 36 <213> ORGANISM: Fusarium oxysporum
 38 <400> SEQUENCE: 1
 39 tgcggatcca tggtaagtt cgcttcgcgtc 30
 42 <210> SEQ ID NO: 2
 43 <211> LENGTH: 30
 44 <212> TYPE: DNA
 45 <213> ORGANISM: Fusarium oxysporum
 47 <400> SEQUENCE: 2
 48 gacctcgagt taagcatagg tgtcaatgaa 30
 51 <210> SEQ ID NO: 3
 52 <211> LENGTH: 998
 53 <212> TYPE: DNA
 54 <213> ORGANISM: Fusarium oxysporum
 56 <400> SEQUENCE: 3
 57 atcatcaacc actcttcact cttcaactct cctctcttgg atatctatct cttcaccatg 60
 59 gtcaagttcg cttccgtcgt tgcacttggt gctcccctgg ctgctgccgc tcttcaggag 120
 61 atcccccaaca ttgttggtgg cacttctgcc agcgcctggcg actttccctt catcgtgagc 180
 63 attagccgca acggtggccc ctgggtgtgga ggttctctcc tcaacgccaa caccgtcttg 240
 65 actgctgccc actgcgtttc cggatacget cagagcgggt tccagattcg tgctggcagt 300
 67 ctgtctcgca cttctgggtg tattacctcc tcgctttcct ccgtcagagt tcaccctagc 360

RAW SEQUENCE LISTING

DATE: 11/05/2004

PATENT APPLICATION: US/09/461,537B

TIME: 10:31:39

Input Set : A:\4216260 SQ List.txt

Output Set: N:\CRF4\11052004\I461537B.raw

```

69 tacagcggaa acaacaacga tcttgctatt ctgaagctct ctacttccat cccctccggc 420
71 ggaaacatcg gctatgctcg cctggctgct tccggctctg accctgtcgc tggatcttct 480
73 gccactgttg ctggctgggg cgtacctct gagggcggca gctctactcc cgtcaacctt 540
75 ctgaagggtta ctgtccctat cgtctctcgt gctacctgcc gagctcagta cggcacctcc 600
77 gccatcacca accagatggt ctgtgctggt gtttcttccg gtggcaagga ctcttgccag 660
79 ggtgacagcg gcggccccc atcgacacgc tccaacaactc ttatcggtgc tgtctcttgg 720
81 ggtaacggat gtgcccagacc caactactct ggtgtctatg ccagcggttg tgcctccgc 780
83 tctttcattg acacctatgc ttaaataact tgttggaagc gtcgagatgt tcttgaata 840
85 ttctctagct tgagctcttg atacgaaacc tgtttgagaa ataggtttca acgagttaag 900
87 aagatatgag ttgatttcag ttggatctta gtctggttg ctcgtaatag agcaatctag 960
89 atagcccaaa ttgaatatga aatttgatga aaatatcc 998
92 <210> SEQ ID NO: 4
93 <211> LENGTH: 248
94 <212> TYPE: PRT
95 <213> ORGANISM: Fusarium oxysporum
98 <220> FEATURE:
99 <221> NAME/KEY: PROPEP
100 <222> LOCATION: (1)..(24)
102 <220> FEATURE:
103 <221> NAME/KEY: mat_peptide
104 <222> LOCATION: (25)..(248)
106 <400> SEQUENCE: 4
108 Met Val Lys Phe Ala Ser Val Val Ala Leu Val Ala Pro Leu Ala Ala
109 -20 -15 -10
112 Ala Ala Pro Gln Glu Ile Pro Asn Ile Val Gly Gly Thr Ser Ala Ser
113 -5 -1 1 5
116 Ala Gly Asp Phe Pro Phe Ile Val Ser Ile Ser Arg Asn Gly Gly Pro
117 10 15 20
120 Trp Cys Gly Gly Ser Leu Leu Asn Ala Asn Thr Val Leu Thr Ala Ala
121 25 30 35 40
124 His Cys Val Ser Gly Tyr Ala Gln Ser Gly Phe Gln Ile Arg Ala Gly
125 45 50 55
128 Ser Leu Ser Arg Thr Ser Gly Gly Ile Thr Ser Ser Leu Ser Ser Val
129 60 65 70
132 Arg Val His Pro Ser Tyr Ser Gly Asn Asn Asn Asp Leu Ala Ile Leu
133 75 80 85
136 Lys Leu Ser Thr Ser Ile Pro Ser Gly Gly Asn Ile Gly Tyr Ala Arg
137 90 95 100
140 Leu Ala Ala Ser Gly Ser Asp Pro Val Ala Gly Ser Ser Ala Thr Val
141 105 110 115 120
144 Ala Gly Trp Gly Ala Thr Ser Glu Gly Gly Ser Ser Thr Pro Val Asn
145 125 130 135
148 Leu Leu Lys Val Thr Val Pro Ile Val Ser Arg Ala Thr Cys Arg Ala
149 140 145 150
152 Gln Tyr Gly Thr Ser Ala Ile Thr Asn Gln Met Phe Cys Ala Gly Val
153 155 160 165
156 Ser Ser Gly Gly Lys Asp Ser Cys Gln Gly Asp Ser Gly Gly Pro Ile
157 170 175 180
160 Val Asp Ser Ser Asn Thr Leu Ile Gly Ala Val Ser Trp Gly Asn Gly

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/461,537B

DATE: 11/05/2004

TIME: 10:31:39

Input Set : A:\4216260 SQ List.txt

Output Set: N:\CRF4\11052004\I461537B.raw

```

161 185          190          195          200
164 Cys Ala Arg Pro Asn Tyr Ser Gly Val Tyr Ala Ser Val Gly Ala Leu
165          205          210          215
168 Arg Ser Phe Ile Asp Thr Tyr Ala
169          220
172 <210> SEQ ID NO: 5
173 <211> LENGTH: 1206
174 <212> TYPE: DNA
175 <213> ORGANISM: Fusarium oxysporum
177 <400> SEQUENCE: 5
178 gaattcttac aaaccttcaa cagtggagac ttccgacacg acatatcgat cctttgaaga      60
180 tacggtgagc gtcagatcat gaatttcata catcctcacg tccttcctct ttcaaaactat      120
182 gcaaagtcc tctagtacct cccaaaactt gatttacgcg ctctccaatc aaaagtacct      180
184 tccaaaagtg atctacctca gctctagatc agggcaccta ttcgcaaaga tctacaagct      240
186 gaactagtaa gcatagcggg agaatatccc acatcattcg agaaggcctt cgtattagac      300
188 ctagtgggat cgacagaaaa gataagacgg agatagatgc tatgtttgga aggtagggga      360
190 tggaatagga tgcaacaggt attggcataa gcgatgcaat aggtgcatct agaaactagg      420
192 tgacagactg gccacagagg tgtatcctat gcaggtcgat gcgtgcgta tcgcagggct      480
194 gctattgcgt ggtggtggct acaaaagttc tatgtggttt ccagtttcag aatattgggc      540
196 cattgtgatt gatggcgcat gaccgaatta tagcagtga ccccgcccag agtagtagtg      600
198 cagatgcgct ttgatgcttg gcgattcctc gggctaaata actccggttg gtctgtagaa      660
200 tgctgacgcg atgatccttc ggcattaatc gtagatcttg gggggggata agccgatcaa      720
202 agacacactg tagatcagct cttcgatgac tcttaccagc tttataataa cattcatctt      780
204 gaacgtcttt ttcgtccagt gtttaccttt cgtcctatct atccgtcata tccacagtgt      840
206 tattggcgat agagttatcg actttcctca tcgggatact ggccctgctt gccaaaggcc      900
208 ttatatgccg atcactttca cgggagcatg ataagggtta tgctttctct gaatgccgaa      960
210 ctagactacg gaacaacgga gcttagtacc agaaaggcag gtacgcctat tcgcaaactc     1020
212 cgaagataca accaagcaag cttatcgcg gatagtaacc agagaggcag gtaagaagac     1080
214 acaacaacat ccatagctat gtagattctc gaatataaaa ggaccaagat ggactattcg     1140
216 aagtagtcta tcatcaacca ctcttcactc ttcaactctc ctctcttgga tatctatctc     1200
218 ttcacc                                         1206
221 <210> SEQ ID NO: 6
222 <211> LENGTH: 2148
223 <212> TYPE: DNA
224 <213> ORGANISM: Fusarium oxysporum
226 <400> SEQUENCE: 6
227 gaattcttac aaaccttcaa cagtggagac ttccgacacg acatatcgat cctttgaaga      60
229 tacggtgagc gtcagatcat gaatttcata catcctcacg tccttcctct ttcaaaactat      120
231 gcaaagtcc tctagtacct cccaaaactt gatttacgcg ctctccaatc aaaagtacct      180
233 tccaaaagtg atctacctca gctctagatc agggcaccta ttcgcaaaga tctacaagct      240
235 gaactagtaa gcatagcggg agaatatccc acatcattcg agaaggcctt cgtattagac      300
237 ctagtgggat cgacagaaaa gataagacgg agatagatgc tatgtttgga aggtagggga      360
239 tggaatagga tgcaacaggt attggcataa gcgatgcaat aggtgcatct agaaactagg      420
241 tgacagactg gccacagagg tgtatcctat gcaggtcgat gcgtgcgta tcgcagggct      480
243 gctattgcgt ggtggtggct acaaaagttc tatgtggttt ccagtttcag aatattgggc      540
245 cattgtgatt gatggcgcat gaccgaatta tagcagtga ccccgcccag agtagtagtg      600
247 cagatgcgct ttgatgcttg gcgattcctc gggctaaata actccggttg gtctgtagaa      660
249 tgctgacgcg atgatccttc ggcattaatc gtagatcttg gggggggata agccgatcaa      720
251 agacacactg tagatcagct cttcgatgac tcttaccagc tttataataa cattcatctt      780

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/461,537B

DATE: 11/05/2004

TIME: 10:31:39

Input Set : A:\4216260 SQ List.txt

Output Set: N:\CRF4\11052004\I461537B.raw

```

253 gaacgtctttt ttcgtccagt gtttaccttt cgtcctatct atccgtcata tccacagtgt      840
255 tattggcgat agagttatcg actttcctca tcgggatact ggccccctgct gccaagggcc      900
257 ttatatgccg atcactttca cgggagcatg ataagggttaa tgcttcttct gaatgccgaa      960
259 taaatacctt gttggaagcg tcgagatggt ccttgaatat tctctagctt gagtcttgga     1020
261 tacgaaacct gtttgagaaa taggtttcaa cgagttaaga agatatgagt tgatttcagt     1080
263 tggatcttag tccctggttg tcgtaataga gcaatctaga tagcccaaat tgaatatgaa     1140
265 atttgatgga aatattcatt tcgatagaag caacgtgaaa tgtctagcag gacgaaaagt     1200
267 agatcaaggc tgttatgttc cccgaccaac ctaccttgat gtcagtctgc gagtctgtg      1260
269 cagtgaacca gaatgatgga ttgacttgga cttttctctgt ctatgaagta ttatgaacat     1320
271 gaatatcggt tccctcattat ctatgttggc agcctaaagt tttaccatat agctagcaat     1380
273 cagtcaagta tctgcgtatg aagggttggt aagccaggac ggtatcagcg ttgaatatct     1440
275 aaagaatgat atgagataat caacattgac atgataaaaag aaaaggggaa acaaattgtg     1500
277 catatagtaa agacttcagg tcgacccctc aatagacata tgcgaaccga aaaccaacag     1560
279 gatacaatct atagataagt ataactacag ttatctgtct gccgaacaaa tactcttttg     1620
281 tgaaacaaat gaagagtaca taagctacag ttctctcagta ggaacatcct ttacaataac     1680
283 tcccttgact tcccttcagct tctcaatagc ctccaaagtc atcgggtctgc catcaaggca     1740
285 cgtcagctct ggtgtagcat acagcagtcg catacttacg gaggatagga agtgggagga     1800
287 atcggttcgt tctgcctcca aaaatcgaca ccagtgtcct ttttgacgat actgatatgg     1860
289 tggtaagctt gggagtcctat tgttgacgtt gcatcactta cttaagcacg gtttcattcc     1920
291 tctgctgata gtctctcaac ttctcgaagt cgtaaaccgat ggcttatagt atcttattga     1980
293 gaaatatgtc ttctcagaaa attatatctt gtttaccttt cggtcgcgca tggctgctaa     2040
295 aactgctggg aaattcaaaa gcgcagcaca agcagcaaga gtgatgggca caacgtgata     2100
297 tgttgataaa agcatcagta tcgataagtt ccactcagaa acctgcag      2148
300 <210> SEQ ID NO: 7
301 <211> LENGTH: 1060
302 <212> TYPE: DNA
303 <213> ORGANISM: Humicola insolens
306 <220> FEATURE:
307 <221> NAME/KEY: CDS
308 <222> LOCATION: (10)..(924)
310 <220> FEATURE:
311 <221> NAME/KEY: sig_peptide
312 <222> LOCATION: (10)..(72)
314 <220> FEATURE:
315 <221> NAME/KEY: mat_peptide
316 <222> LOCATION: (73)..(924)
318 <400> SEQUENCE: 7
319 ggatccaag atg cgt tcc tcc ccc ctc ctc ccg tcc gcc gtt gtg gcc gcc      51
320           Met Arg Ser Ser Pro Leu Leu Pro Ser Ala Val Val Ala Ala
321           -20                      -15                      -10
323 ctg ccg gtg ttg gcc ctt gcc gct gat ggc agg tcc acc cgc tac tgg      99
324 Leu Pro Val Leu Ala Leu Ala Ala Asp Gly Arg Ser Thr Arg Tyr Trp
325           -5                      -1 1                      5
327 gac tgc tgc aag cct tcg tgc ggc tgg gcc aag aag gct ccc gtg aac      147
328 Asp Cys Cys Lys Pro Ser Cys Gly Trp Ala Lys Lys Ala Pro Val Asn
329 10                      15                      20                      25
331 cag cct gtc ttt tcc tgc aac gcc aac ttc cag cgt atc acg gac ttc      195
332 Gln Pro Val Phe Ser Cys Asn Ala Asn Phe Gln Arg Ile Thr Asp Phe
333           30                      35                      40

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/461,537B

DATE: 11/05/2004

TIME: 10:31:39

Input Set : A:\4216260 SQ List.txt

Output Set: N:\CRF4\11052004\I461537B.raw

```

335 gac gcc aag tcc ggc tgc gag ccg ggc ggt gtc gcc tac tcg tgc gcc      243
336 Asp Ala Lys Ser Gly Cys Glu Pro Gly Gly Val Ala Tyr Ser Cys Ala
337          45                      50                      55
339 gac cag acc cca tgg gct gtg aac gac gac ttc gcg ctc ggt ttt gct      291
340 Asp Gln Thr Pro Trp Ala Val Asn Asp Asp Phe Ala Leu Gly Phe Ala
341          60                      65                      70
343 gcc acc tct att gcc ggc agc aat gag gcg ggc tgg tgc tgc gcc tgc      339
344 Ala Thr Ser Ile Ala Gly Ser Asn Glu Ala Gly Trp Cys Cys Ala Cys
345          75                      80                      85
347 tac gag ctc acc ttc aca tcc ggt cct gtt gct ggc aag aag atg gtc      387
348 Tyr Glu Leu Thr Phe Thr Ser Gly Pro Val Ala Gly Lys Lys Met Val
349 90                      95                      100                      105
351 gtc cag tcc acc agc act ggc ggt gat ctt ggc agc aac cac ttc gat      435
352 Val Gln Ser Thr Ser Thr Gly Gly Asp Leu Gly Ser Asn His Phe Asp
353          110                      115                      120
355 ctc aac atc ccc ggc ggc ggc gtc ggc atc ttc gac gga tgc act ccc      483
356 Leu Asn Ile Pro Gly Gly Gly Val Gly Ile Phe Asp Gly Cys Thr Pro
357          125                      130                      135
359 cag ttc ggc ggt ctg ccc ggc cag cgc tac ggc ggc atc tcg tcc cgc      531
360 Gln Phe Gly Gly Leu Pro Gly Gln Arg Tyr Gly Gly Ile Ser Ser Arg
361          140                      145                      150
363 aac gag tgc gat cgg ttc ccc gac gcc ctc aag ccc ggc tgc tac tgg      579
364 Asn Glu Cys Asp Arg Phe Pro Asp Ala Leu Lys Pro Gly Cys Tyr Trp
365          155                      160                      165
367 cgc ttc gac tgg ttc aag aac gcc gac aat ccg agc ttc agc ttc cgt      627
368 Arg Phe Asp Trp Phe Lys Asn Ala Asp Asn Pro Ser Phe Ser Phe Arg
369 170                      175                      180                      185
371 cag gtc cag tgc cca gcc gag ctc gtc gct cgc acc gga tgc cgc cgc      675
372 Gln Val Gln Cys Pro Ala Glu Leu Val Ala Arg Thr Gly Cys Arg Arg
373          190                      195                      200
375 aac gac gac ggc aac ttc cct gcc gtc cag atc ccc tcc agc agc acc      723
376 Asn Asp Asp Gly Asn Phe Pro Ala Val Gln Ile Pro Ser Ser Ser Thr
377          205                      210                      215
379 agc tct ccg gtc aac cag cct acc agc acc agc acc acg tcc acc tcc      771
380 Ser Ser Pro Val Asn Gln Pro Thr Ser Thr Ser Thr Ser Thr Ser
381          220                      225                      230
383 acc acc tcg agc ccg cca gtc cag cct acg act ccc agc ggc tgc act      819
384 Thr Thr Ser Ser Pro Pro Val Gln Pro Thr Thr Pro Ser Gly Cys Thr
385          235                      240                      245
387 gct gag agg tgg gct cag tgc ggc ggc aat ggc tgg agc ggc tgc acc      867
388 Ala Glu Arg Trp Ala Gln Cys Gly Gly Asn Gly Trp Ser Gly Cys Thr
389 250                      255                      260                      265
391 acc tgc gtc gct ggc agc act tgc acg aag att aat gac tgg tac cat      915
392 Thr Cys Val Ala Gly Ser Thr Cys Thr Lys Ile Asn Asp Trp Tyr His
393          270                      275                      280
395 cag tgc ctg tagacgcagg gcagcttgag ggccttactg gtggccgcaa      964
396 Gln Cys Leu
399 cgaaatgaca ctcccaatca ctgtattagt tcttgtacat aatttcgtoa tccctccagg 1024
401 gattgtcaca taaatgcaat gaggaacaat gaggtag      1060

```

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/461,537B

DATE: 11/05/2004

TIME: 10:31:40

Input Set : A:\4216260 SQ List.txt

Output Set: N:\CRF4\11052004\I461537B.raw